

Eight New Spiders of the Families Hahniidae, Theridiidae, Linyphiidae and Anapidae (Arachnida, Araneae) from Japan

Hirotsugu Ono

Department of Zoology, National Museum of Nature and Science,
3–23–1, Hyakunin-cho, Shinjuku-ku, Tokyo, 169–0073 Japan
E-mail: ono@kahaku.go.jp

Abstract Eight new species of spiders of the families Hahniidae, Theridiidae, Linyphiidae and Anapidae (Arachnida, Araneae) are described from Japan: Hahniidae: *Cryphoea shinkaii* sp. nov. (from Nippara, Okutama-cho, Nishitama-gun, Tokyo, Honshu) and *Cryphoea shingoi* sp. nov. (from Mt. Odaigahara-zan, Kami-kitayama-mura, Yoshino-gun, Nara Prefecture, Honshu); Theridiidae: *Pholcomma tokyoense* sp. nov. (from Akasaka, Minato-ku, Tokyo, Honshu) and *Allothymoites kumadai* gen. et sp. nov. (from Kouchi, Geinou-cho, Age-gun, Mie Prefecture, Honshu); Linyphiidae: *Walckenaeria iriei* sp. nov. (from the bank of Honmyou-gawa River, Isahaya-shi, Nagasaki Prefecture, Kyushu), *Kagurargus kikuyai* gen. et sp. nov. (from Mt. Kagura-yama, Saeki-shi, Oita Prefecture, Kyushu), and *Meioneta tenuipes* sp. nov. (from Aso, Taiki-cho, Watarai-gun, Mie Prefecture, Honshu); Anapidae: *Mysmenella ogatai* sp. nov. (from Ikegane-cho, Okazaki-shi, Aichi Prefecture, Honshu). Two new genera are established both by monotypy: Theridiidae: *Allothymoites* gen. nov. (type species: *Allothymoites kumadai* sp. nov.); Linyphiidae: *Kagurargus* gen. nov. (type species: *Kagurargus kikuyai* sp. nov.).

Key words: Taxonomy, Araneae, Hahniidae, Theridiidae, Linyphiidae, Anapidae, Japan.

Although the spider fauna of Japan has been quite well investigated in comparison with those of other Asian countries (F. and J. Murphy, 2000), many species are left unstudied in some groups, especially those with small body size. The present report deals with the result of a taxonomical study on eight species of small spiders (body length less than 3 mm) of the families Hahniidae, Theridiidae, Linyphiidae and Anapidae from Japan. The material used for the study was selected from the specimens contributed to the arachnid collection of the National Museum of Nature and Science, Tokyo, by many arachnologists and friends of the present author.

Cryphoea Thorell, 1870, is a small group composed of ten species mainly from the Palearctic region and two species of these have been recorded from Japan, that is, *C. silvicola* (C. L. Koch, 1834) and *C. angularis* S. Saito, 1934.

Palearctic *Cryphoea silvicola* was recorded for the first time by Yaginuma and Nishikawa (1969) from Mt. Ontake, 2500 m alt., Gifu Prefecture, Honshu, Japan, while *C. angularis* was described by Saito (1934) from Sapporo, Hokkaido. However, the latter species has never been recognized since its original description. In the present material from Japan, further two new species of the genus has been discovered.

Pholcomma Thorell, 1869 (Theridiidae) is also a small group including several species from Europe, North America and Australia. Since all the known members of the genus from Japan were transferred to other genera, it is thought that the genus does not occur in Japan (Yoshida, 2003). During faunal researches in the Akasaka Imperial Gardens, Tokyo, made by the National Museum of Nature and Science, some specimens of an unknown spider were obtained, which seem to really belong to the genus in question (Ono, 2005).

A peculiar theridiid collected by Mr. Kenichi Kumada from Mie Prefecture has been entrusted to the present author for study. The spider is regarded to belong to a new genus standing close to *Thymoites* Keyserling, 1884.

Although *Mysmenella jobi* (Kraus, 1967) (Anapidae, Mysmeninae) was long known to be the only species of the genus in Japan (Yaginuma, 1986; Shinkai, 2006), another species of the genus was recently found in Aichi Prefecture by Mr. Kiyoto Ogata. This spider lives between grasses, while *Mysmenella jobi* spins her web in the vacancy of the ground. After a careful examination of the specimens the present author recognized that the newly found Japanese spider resembles to *Mysmenella gongi* Yin, Peng et Bao, 2004, described from China, rather than to *M. jobi*, but differs in details from the Chinese species.

Linyphiidae is the largest family in spiders, containing more than five hundred genera and six thousand species mainly in Northern Hemisphere. Of these, about three hundred species of 98 genera are known in Japan (Ono, Kamura and Nishikawa, 1999), but there is a strong possibility that more new species and records should be added to these numbers (Saito and Ono, 2001; Ono and Saito, 2001). A new genus and three new species are selected from unclassified specimens preserved in the collection of the National Museum and featured herein.

Thus, two new genera and eight new species of spiders are described in this paper.

The abbreviations used are as follows: ALE, anterior lateral eye; AME, anterior median eye; PLE, posterior lateral eye; PME, posterior median eye. The type specimens of the new species are deposited in the collection of the Department of Zoology, National Museum of Nature and Science, Tokyo (NSMT-Ar).

Taxonomy

Family Hahniidae

Genus *Cryphoea* Thorell, 1870

Cryphoea shinkaii sp. nov.

[Japanese name: Musashi-sumi-tanagumo]

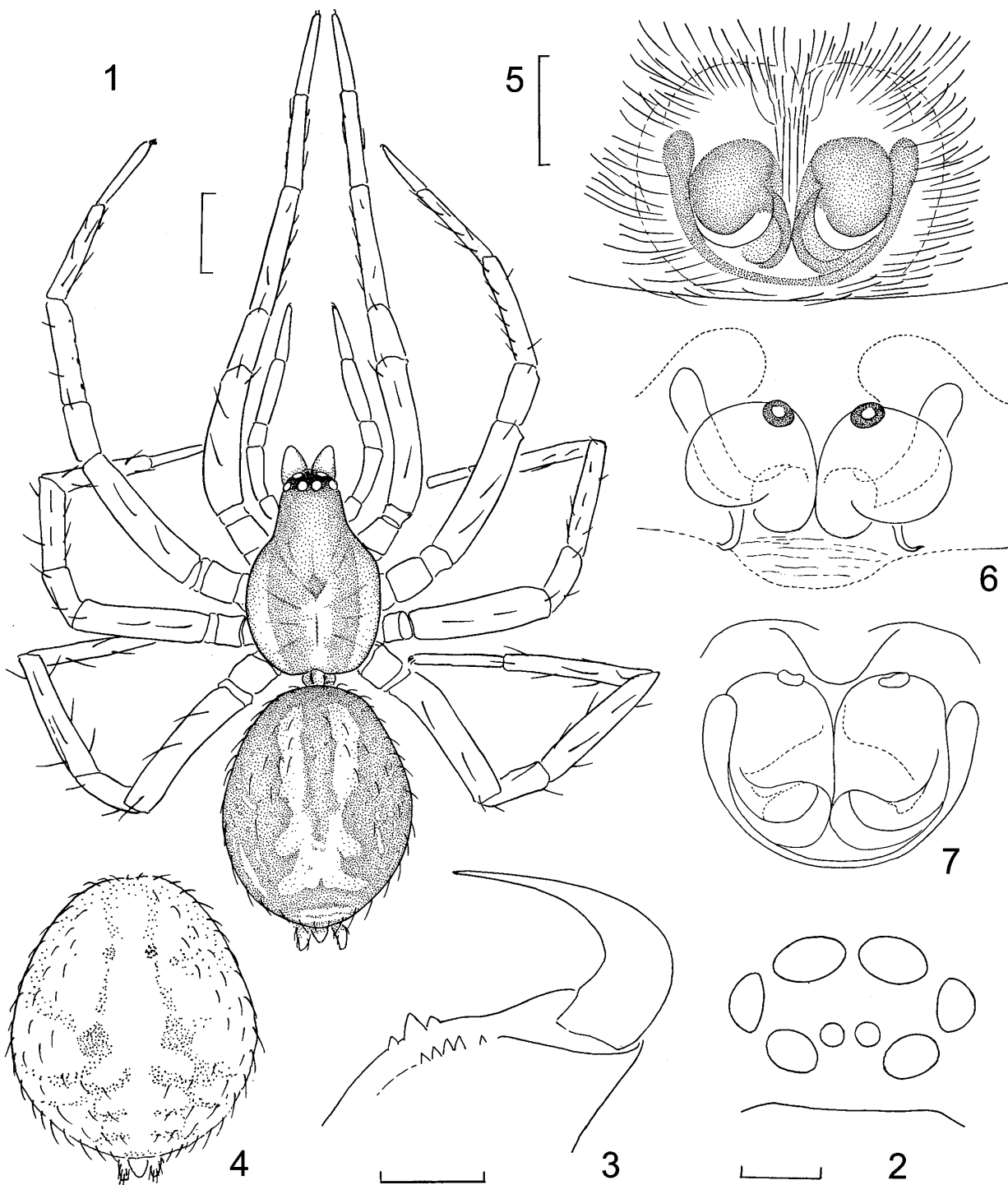
(Figs. 1–15)

Diagnosis. This new species can be easily distinguished from all other congeners by the short embolus of male palp. In general appearance, it strikingly resembles the next new species, *Cryphoea shingoi* sp. nov., but differs from the latter in details of the male palp, especially in the shape of embolus (cf. Figs. 13, 26), and the structure of female genitalia (cf. Figs. 5–7, 17–18).

Material examined. Holotype: male from Nippara, 1025 m alt., Okutama-cho, Nishitama-gun, Tokyo, Japan, 6–IV–2006, S. Hatsushiba leg. (NSMT-Ar 6958); allotype: female, same locality and collector as for the holotype, 13–IV–2007 (NSMT-Ar 6959); paratypes: 5 females and 4 males, same data as for the allotype (NSMT-Ar 6971–6978).

Description (holotype and allotype). Measurements: Body length female 2.75 mm, male 2.72 mm; prosoma length female 1.24 mm, male 1.50 mm, width female 0.80 mm, male 0.92 mm; opisthosoma length female 1.42 mm, male 1.20 mm, width female 1.01, male 0.82 mm; lengths of legs [total length (femur+patella+tibia+metatarsus+tarsus)]: female I 3.02 mm (0.81+0.38+0.78+0.68+0.37), II 2.88 mm (0.81+0.36+0.67+0.67+0.37), III 2.58 mm (0.72+0.33+0.52+0.66+0.35), IV 3.36 mm (0.90+0.36+0.79+0.89+0.42), male I 3.84 mm (1.05+0.41+0.97+0.86+0.55), II 3.55 mm (0.98+0.40+0.84+0.85+0.48), III 3.18 mm (0.88+0.36+0.67+0.83+0.44), IV 4.21 mm (1.13+0.38+0.99+1.11+0.60).

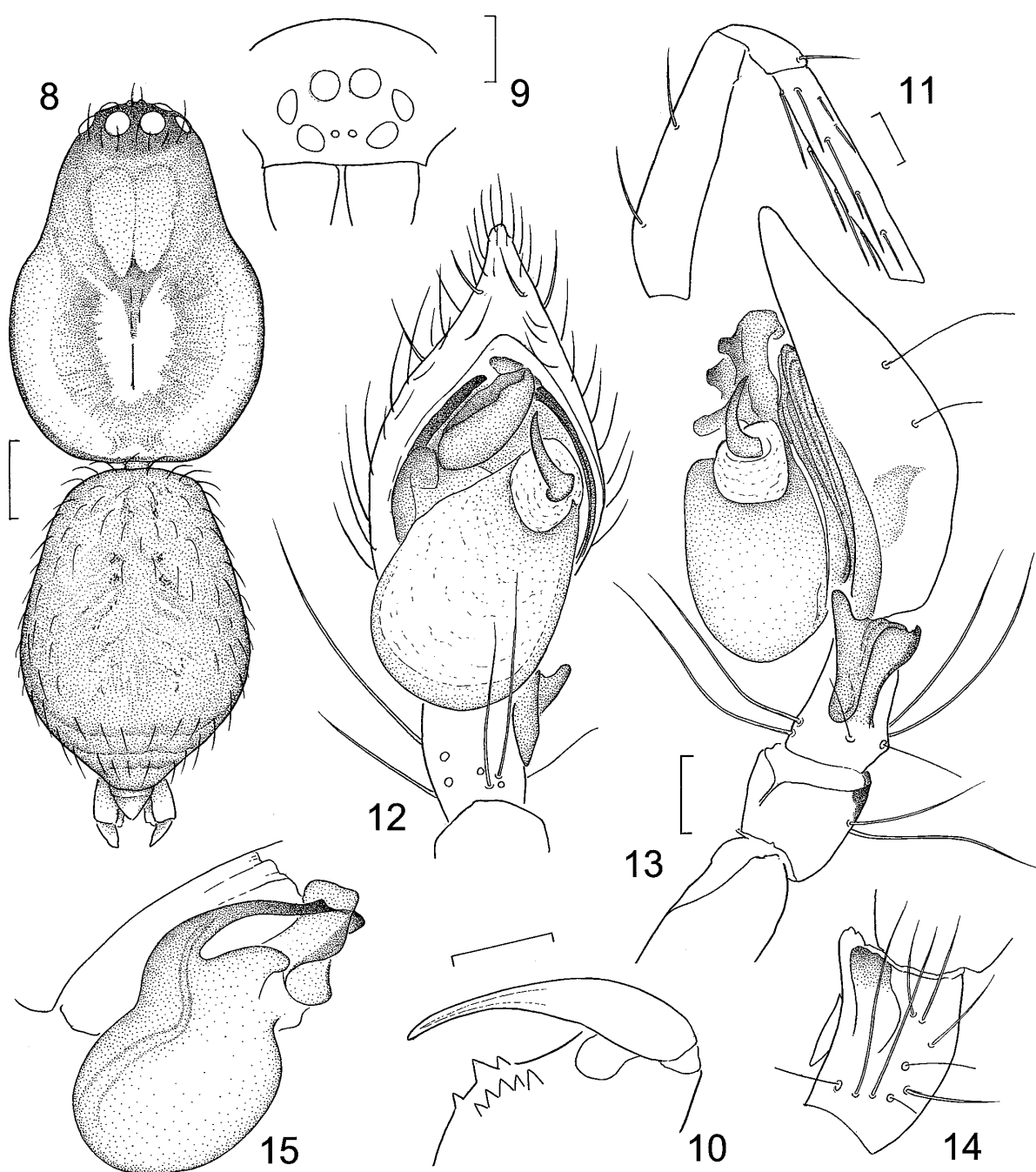
Prosoma (Figs. 1, 8): Carapace much longer than wide (length/width female 1.55, male 1.63 in ratio), flat, with some hairs, median furrow distinct. Eyes compactly set (Figs. 2, 9), anterior and posterior eye rows procurved in frontal view, straight in dorsal view, PME>PLE=ALE>AME in female (3.7:3.5:3.5:1 in diameter), PLE=PME=ALE>AME in male (3:3:3:1 in diameter), AME-AME<AME-ALE (4:5 in female, 3:5 in male), PME-PME≥PME-PLE (1:1 in fe-



Figs. 1-7. *Cryphoea shinkaii* sp. nov. [1-3 & 5-7, female (allotype: NSMT-Ar 6959), 4, female (paratype: NSMT-Ar 6976)]. — 1, Body, dorsal view; 2, eyes, frontal view; 3, chelicera, ventral view; 4, opisthosoma, dorsal view; 5, epigynum, ventral view; 6, inner organ of female genitalia, dorsal view; 7, same, ventral view. [Scales: for Figs. 1 & 4, 0.5 mm, for Fig. 2, 0.2 mm, for Figs. 3, 5-7, 0.1 mm.]

male, 2:1 in male), median ocular area slightly wider than long (length/width female 0.94, male 0.92), wider behind than in front (anterior width/posterior width female and male 0.34), clypeus much shorter than width of eye area.

Chelicerae (Figs. 3, 10) with three teeth on pro-marginal of fang furrow and five teeth on retromargin, labium wider than long (length/width female 0.66 male 0.70), sternum with long hairs, slightly longer than wide or as long as wide in female



Figs. 8–15. *Cryphoea shinkaii* sp. nov., male (holotype: NSMT-Ar 6958). — 8, Pro- and opisthosomata (appendages omitted), dorsal view; 9, eyes, frontal view; 10, chelicerae, ventral view; 11, femur, patella and tibia of leg I, prolateral view; 12, palpal organ, ventral view; 13, same, retrolateral view; 14, tibia of palp, dorsal view; 15, embolic division, prolateral view. [Scales: for Fig. 8, 0.3 mm, for Figs. 9–11, 0.2 mm, for Figs. 12–15, 0.1 mm.]

(length/width 1.07 in female, 1.00 in male).

Legs: Conspicuous trichobothria on tibiae, metatarsi and tarsi, tarsal claws of legs with two or three small teeth. Spiniformation: Female: femora I–IV dorsally 0–1–1–1, I prolaterally 0–0–0–1; patellae I–IV dorsally 1–0–1 (apical);

tibiae I–IV dorsally 1–1, prolaterally 0–1–0–1 (I), 0–1–1–0 (III–IV) or 0–1–1–1 (II), retrolaterally 0–1–1 (I, III–IV) or 0–1–0 (II), ventrally 2–2–2–0 (I–II), 0–1–2–0 (III) or 1–1–2 (IV); metatarsi I–IV prolaterally 0–1–0–1 (I), 0–1–1–1 (II) or 0–1–1–0 (III–IV), retrolaterally 0–0–0–1

(I), 0-1-0-2 (II-III) or 1-0-1-2 (IV), ventrally 2-2-0 (I-III) or 2-2-1 (IV); male (Fig. 11): femora I-IV dorsally 0-1-1-1 (I-III) or 0-1-1-2 (IV); patellae I-IV 1-0-1 (apical); tibiae I-IV dorsally 1-0-1, prolaterally 1-1, retrolaterally 1-0 (I-II) or 1-1 (III-IV), ventrally 2-2-2-2 (I-II), 2 (III) or 1-1-2 (IV); metatarsi I-IV prolaterally 1-1-1-1 (I-II) or 1-2-0-2 (III-IV), retrolaterally 0-1-0-1 (I), 0-1-0-2 (II), 1-1-0-2 (III) or 0-2-0-2 (IV), ventrally 2-2-0 (I), 2-2-1 (III) or 2-2-2 (II, IV). Leg formula: IV-I-II-III.

Male palp (Figs. 12-15): Tibia with strongly sclerotized apophyses: the retrolateral one with large tooth (Fig. 13), dorsal one distinct (Fig. 14). Cymbium simple with sclerotized, retrolateral margin, palpal organ large with expanded tegulum (Fig. 12) and spiniform tegular apophysis (Figs. 12-13), embolus short, with sharply narrowed tip (Fig. 15) and conducting groove.

Opisthosoma (Figs. 1, 4, 8): Ovate, longer than wide (length/width female 1.41, male 1.46), its dorsum wholly covered with long hairs. Spinnerets short and cylindrical, colulus present.

Female genitalia (Figs. 5-7): Genital field relatively large, epigynum (Fig. 5) with median septum and well-visible inner organ. Paired genital openings situated at posterior part of epigynum. Spermathecae reniform, intromittent canal very short, large club-shaped process present (Figs. 6-7).

Coloration and markings: Female and male: carapace blackish brown with yellow sides and black head. Chelicerae yellowish brown, maxillae, labium and sternum light yellow, legs and palps yellowish brown. Opisthosoma dorsally dark gray, with white markings (indistinct in holotype), venter light gray, spinnerets light yellowish brown.

Variation. Body length of the paratypes: females 3.00-3.18 mm, males 2.70-2.83 mm. The markings of opisthosoma are variable: typical is the pattern as given in Fig. 1 in females and males, but those of some males are dark and without distinct white markings (Fig. 8) and contrary to this, the opisthosoma of some females are light-colored as in Fig. 4.

Distribution. Japan (at present known only from the type locality).

Etymology. The species is dedicated to Mr. Eiichi Shinkai, an excellent spider researcher of Tokyo.

***Cryphoea shingoi* sp. nov.**

[Japanese name: Oodai-sumi-tanagumo]

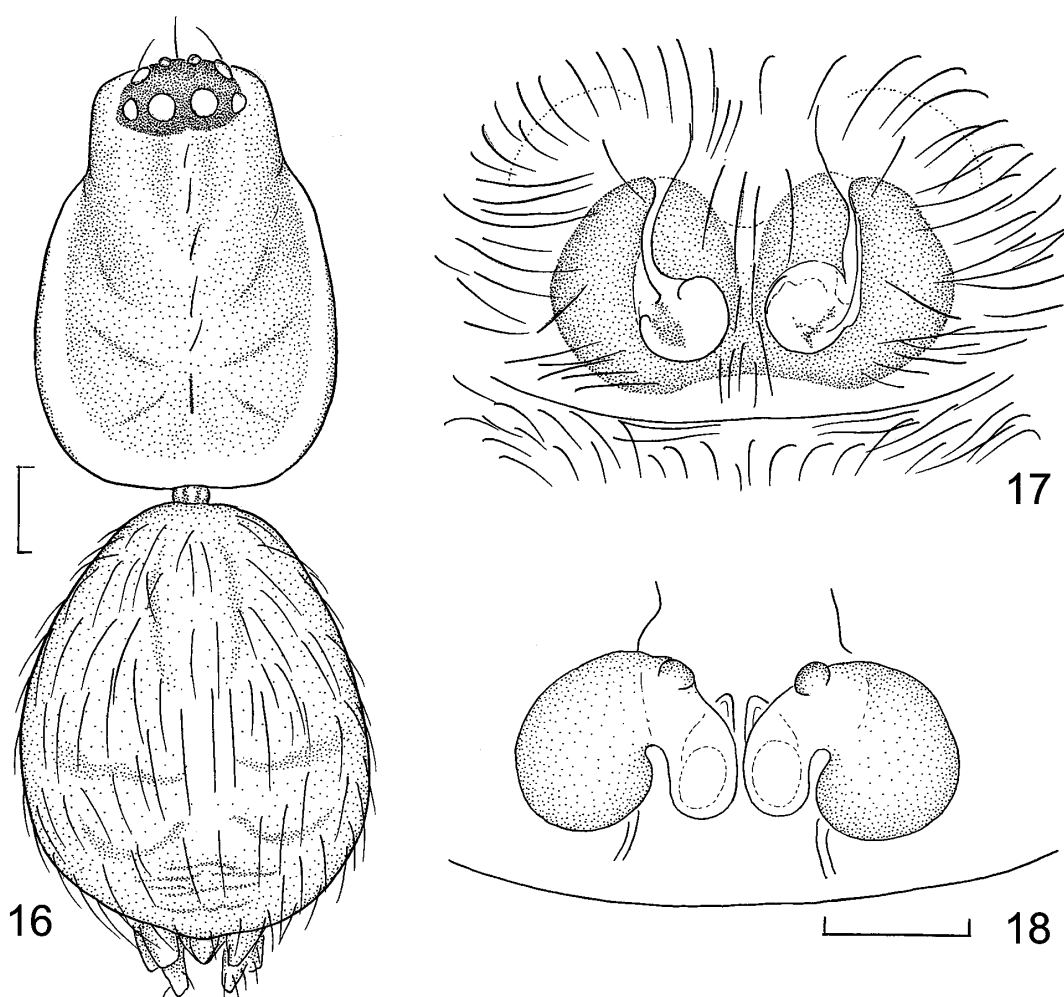
(Figs. 16-28)

Diagnosis. See the diagnosis of the former new species.

Material examined. Male holotype from Mt. Oodaigahara-zan, 1500 m alt., Kami-kitayamura, Yoshino-gun, Nara Prefecture, Honshu, Japan, 22-VI-2005, S. Hatsushiba leg. (NSMT-Ar 6810); female allotype: same data as for the holotype (NSMT-Ar 6811).

Description (holotype and allotype). Measurements: Body length female 2.43 mm, male 2.80 mm; prosoma length female 1.23 mm, male 1.43 mm, width female 0.77 mm, male 0.84 mm; opisthosoma length female 1.06 mm, male 1.31 mm, width female 0.86, male 0.90 mm; lengths of legs [total length (femur+patella+tibia+metatarsus+tarsus)]: female I 3.13 mm (0.88+0.38+0.82+0.68+0.37), II 3.10 mm (0.80+0.38+0.86+0.68+0.38), III 2.49 mm (0.67+0.31+0.53+0.62+0.36), IV 3.36 mm (0.94+0.39+0.79+0.81+0.43), male I 3.68 mm (0.99+0.38+0.94+0.84+0.53), II 3.47 mm (0.98+0.39+0.84+0.81+0.45), III 3.00 mm (0.80+0.34+0.68+0.75+0.43), IV 4.15 mm (1.12+0.35+1.03+1.09+0.56).

Prosoma (Figs. 16, 19): Carapace much longer than wide (length/width female 1.76, male 1.70), flat (Fig. 20), with some hairs, median furrow distinct. Eyes compactly set (Figs. 21), anterior and posterior eye rows procurved in frontal view, recurved or straight in dorsal view, PME=PLE>ALE>AME in female (4:4:3.5:1 in diameter), PME>PLE>ALE>AME in male (6:5:4:1 in diameter), AME-AME<AME-ALE (5:6 in female, 3:4 in male), PME-PME≥ME-PL (1:1 in female, 6:5 in male), median ocular area as long as wide (length/width female and



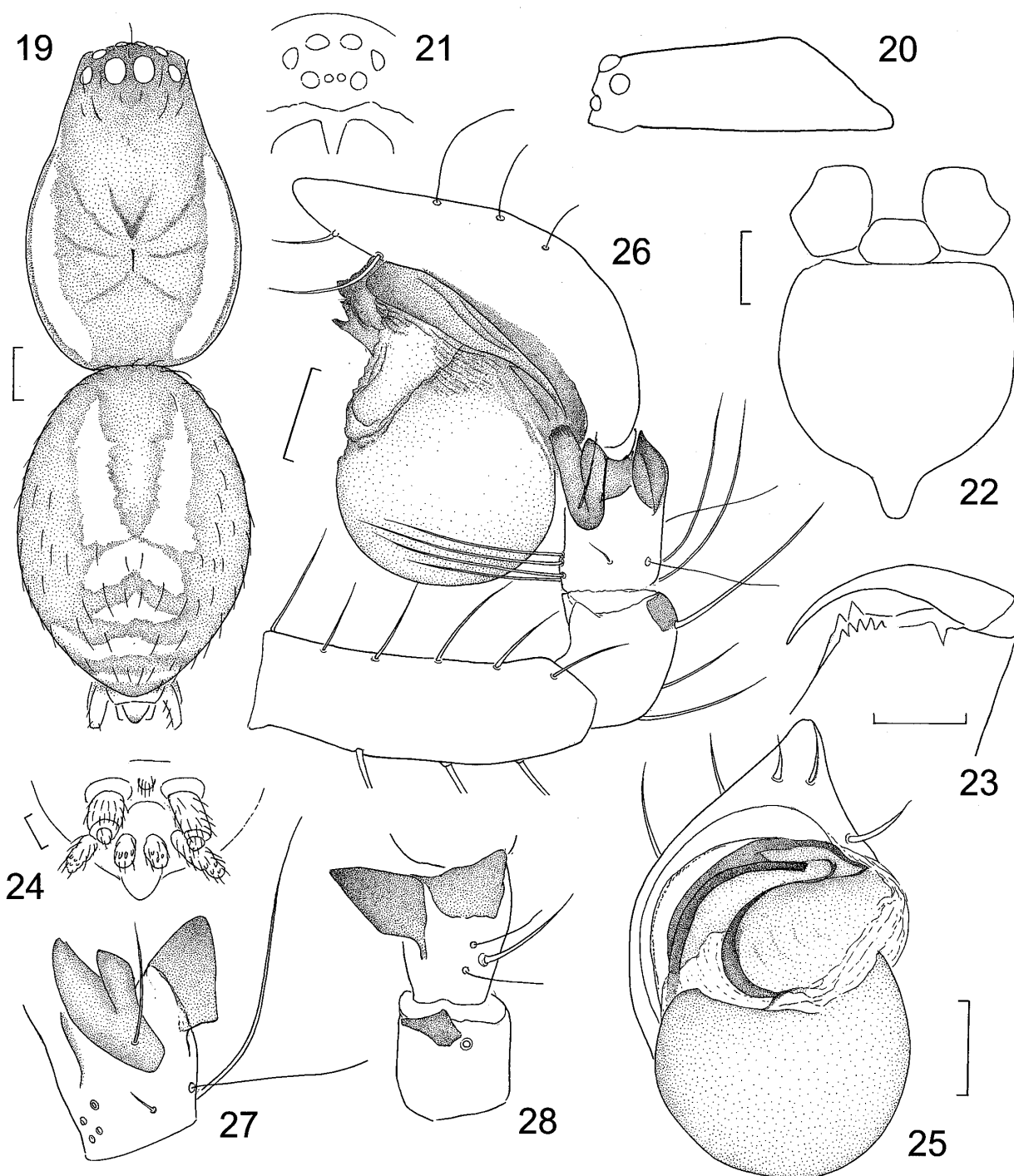
Figs. 16–18. *Cryphoea shingoi* sp. nov., female (allotype: NSMT-Ar 6811). — 16, Pro- and opisthosomata (appendages omitted), dorsal view; 17, epigynum, ventral view; 18, inner organ of female genitalia, dorsal view. [Scales: for Fig. 16, 0.2 mm, for Figs. 17–18, 0.1 mm.]

male 1.00), wider behind than in front (anterior width/posterior width female 0.27, male 0.30), clypeus much shorter than width of eye area. Chelicerae (Fig. 23) furnished with two teeth (with a indistinct denticle) on the promargin of fang furrow and five teeth on retromargin, labium wider than long (length/width female 0.65 male 0.67), sternum with long hairs, longer than wide (length/width 1.25 in female, 1.18 in male).

Legs: Conspicuous trichobothria on tibiae, metatarsi and tarsi, tarsal claws of legs with two or three small teeth. Spiniformation of legs: Female: femora I–IV dorsally 0–1–1–1, I prolaterally 0–0–0–1; patellae I–IV dorsally 1–0–1 (apical); tibiae I–IV dorsally 1–1, prolaterally 0–1–0–1, retrolaterally 0–1–0–1 (I–II), 0–0–1 (III) or 0–1–1 (IV), ventrally 2–2–2–2 (I), 2–2–2 (II), 1–

1–2 (III) or 1–3–0 (IV); metatarsi I–IV prolaterally 0–1–0–1 (I–II), 1–2–2 (III) or 0–2–2 (IV), retrolaterally 0–1–0–1 (I–II), 0–2–2 (III) or 1–1–2 (IV), ventrally 2–2–2 (I–II) or 2–2–1 (III–IV); male: femora I–IV dorsally 0–1–1–1, I and IV prolaterally 0–0–0–1, IV retrolaterally 0–0–0–1; patellae I–IV 1–0–1 (apical); tibiae I–IV dorsally 0–1–0–1, prolaterally 0–1–0–1 (I–II) or 1–1 (III–IV), retrolaterally 0–1–0–1 (I), none (II), 0–1 (III) or 0–1–1 (IV), ventrally 2–2–2–2 (I–II), 3 (III) or 1–1–2 (IV); metatarsi I–IV prolaterally 0–1–1–1 (I), 0–1–0–1 (II) or 1–2–0–2 (III–IV), retrolaterally 0–1–1 (I), 0–1–0–2 (II), 1–1–0–2 (III) or 1–1–1 (IV), ventrally 2–2–2 (I–II), 2–2–1 (III–IV). Leg formula: IV–I–II–III.

Male palp (Figs. 25–28): Tibia with strongly sclerotized apophyses: the retrolateral one with

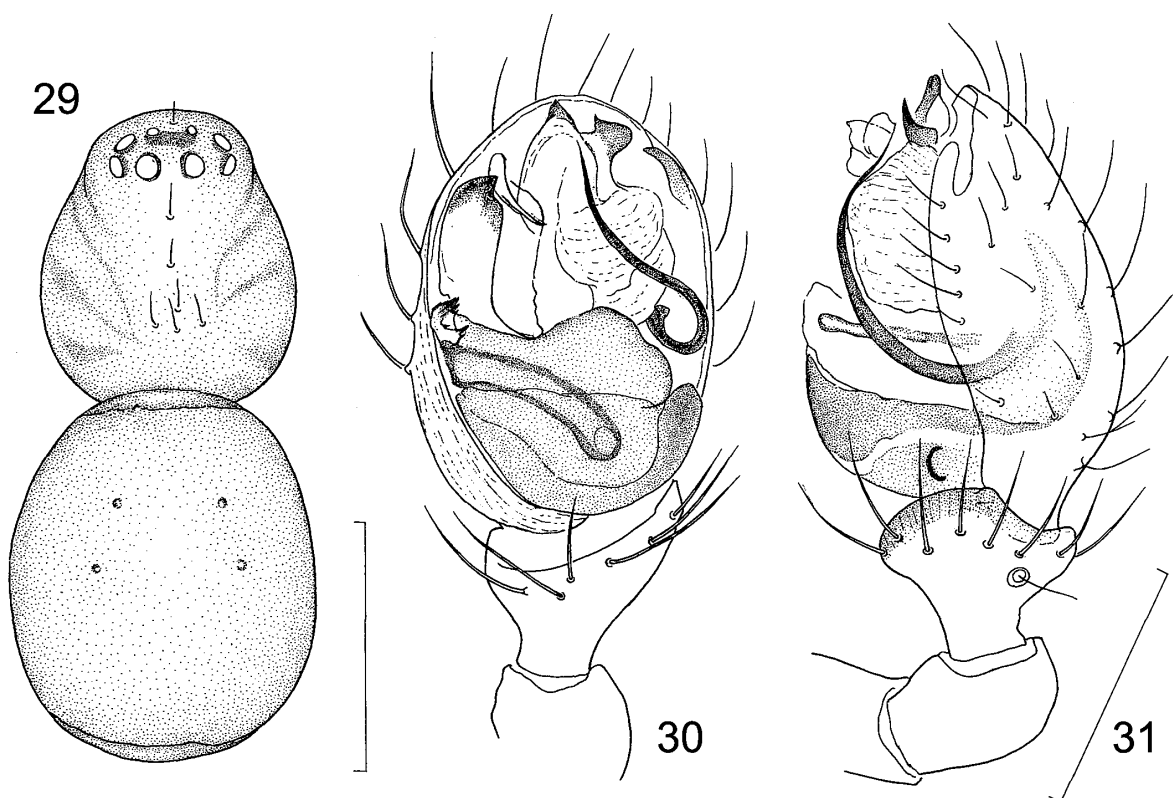


Figs. 19–28. *Cryphoea shingoi* sp. nov., male (holotype: NSMT-Ar 6810). — 19, Pro- and opisthosomata (appendages omitted), dorsal view; 20, carapace, lateral view; 21, eyes, frontal view; 22, maxillae, labium and sternum, ventral view; 23, chelicerae, ventral view; 24, spinnerets, ventral view; 25, palpal organ, ventral view; 26, palp, retrolateral view; 27, tibia of palp, ventral view; 28, patella and tibia of palp, dorsal view. [Scales: for Figs. 19, 22, 0.2 mm, for Figs. 20–21, 23–28, 0.1 mm.]

digitiform tooth (Fig. 27), dorsal one distinct and very large (Figs. 27–28). Cymbium simple with sclerotized, retrolateral margin, palpal organ large with expanded tegulum (Fig. 12) and without tegular apophysis (Figs. 25–26), embolus

short, with truncate tip (Fig. 25), conducting groove large.

Opisthosoma (Figs. 16, 19): Ovate, longer than wide (length/width female 1.23, male 1.45), its dorsum wholly covered with long hairs. Spin-



Figs. 29–31. *Pholcomma tokyoense* sp. nov., male (holotype: NSMT-Ar 6981). — 29, Pro- and opisthosomata (appendages omitted), dorsal view; 30, palpal organ, ventral view; 31, same, retrolateral view. [Scales: for Fig. 29, 0.5 mm, for Figs. 30–31, 0.15 mm.]

nerets short and cylindrical, colulus present (Fig. 24).

Female genitalia (Figs. 17–18): Genital field wider than long, epigynum (Fig. 17) with a median septum indistinct and well-visible inner organ. Paired genital openings situated at middle of epigynum. Spermathecae reniform with very short intromittent canal and with small, granulate gland (Fig. 18).

Coloration and markings: Female: carapace beige with white sides and black head. Chelicerae light yellowish brown, maxillae and labium light yellowish brown, sternum, legs and palps milky white. Opisthosoma dorsally gray without distinct markings, light gray ventrally, spinnerets darker. Male: carapace blackish brown with white sides and black head. Chelicerae yellowish brown, maxillae and labium yellow, sternum dull yellow, and marginated with black, femur and patella of palp reddish brown, tibia and tarsus yellowish brown, legs yellowish brown. Opistho-

soma dark gray dorsally, with distinct white marking, light gray ventrally, spinnerets yellowish white.

Distribution. Japan (at present known only from the type locality).

Etymology. The species is dedicated to the collector of the type specimens.

Family Theridiidae

Genus *Pholcomma* Thorell, 1869

Pholcomma tokyoense sp. nov.

[Japanese name: Toukyou-kabuto-himegumo]

(Figs. 29–31)

Pholcomma sp.: Ono, 2005: 451.

Diagnosis. This new species resembles the type species of the genus, *Pholcomma gibbum* (Westring, 1851), known from Europe, but can be distinguished from the latter by the structure of male palpal organ, especially the shorter em-

bolus (cf. Figs. 30–31 and Wiehle, 1937, p. 218, fig. 277 or Levi, 1957, p. 109, figs. 15–16).

Material examined. Holotype: male from the Akasaka Imperial Gardens, Minato-ku, Tokyo, Japan, 27–II–2004, S. Nomura leg. (NSMT-Ar 6981); paratypes: two males, same data as for the holotype (NSMT-Ar 6982–6983).

Description (holotype). Measurements: Body length 1.23 mm; prosoma length 0.56 mm, width 0.48 mm, height 0.30 mm; opisthosoma length 0.79 mm, width 0.59 mm; lengths of legs [total length (femur+patella+tibia+metatarsus+tarsus)]: I 1.57 mm (0.49+0.19+0.35+0.27+0.27), II 1.26 mm (0.38+0.17+0.28+0.22+0.21), III 1.18 mm (0.35+0.15+0.24+0.22+0.22), IV 1.55 mm (0.48+0.17+0.37+0.25+0.28).

Prosoma: Carapace longer than wide (length/width 1.17), relatively high, with several long setae at the middle, median furrow absent. Eyes: PME>PLE=ALE>AME (6:5:5:3 in size), the anterior eye row recurved, the posterior one procurved in dorsal view, lateral eyes close to each other, AME-AME>AME-ALE (7:2), PME-PME>PME-PLE (7:3), median ocular area wider than long (length/width 1.75), wider behind than in front (anterior width/posterior width 0.65), clypeus longer than AME-AME (3:1). Chelicerae with two small teeth on promargin of fang furrow; labium not fused with anterior margin of sternum, triangle in shape, wider than long (length/width 0.85); maxillae short, as long as labium, without marginal hairs; sternum slightly wider than long (length/width 0.94), its posterior margin truncated and wide. Legs relatively short and thick, without spines; leg formula: I–IV–II–III.

Male palp (Figs. 30–31): Tibia simple and short, with long spines and trichobothrium retro-laterally. Cymbium an oval cup, distally modified with digitiform process (paracymbium); tegular apophysis wide plate with a small tooth apically, median apophysis spiniform, conductor with distinct tooth; embolus long spiniform and winding, without any projection at base.

Opisthosoma: Ovate, longer than wide (length/width 1.34), dorsally forming sclerotized plate,

with many hairs. Colulus: Large, anterior spinnerets the largest, thick and short, posterior ones developed and conical.

Coloration and markings (Fig. 29): Carapace yellowish brown, ocular area blackish, chelicerae, maxillae and labium yellowish brown, sternum yellowish brown without any markings, legs pale yellow. Opisthosoma shiny black dorsally, mat blackish brown ventrally.

Distribution. Japan (at present known only from the type locality).

Etymology. The specific epithet is derived from the name of the city.

Remark. Female is unknown.

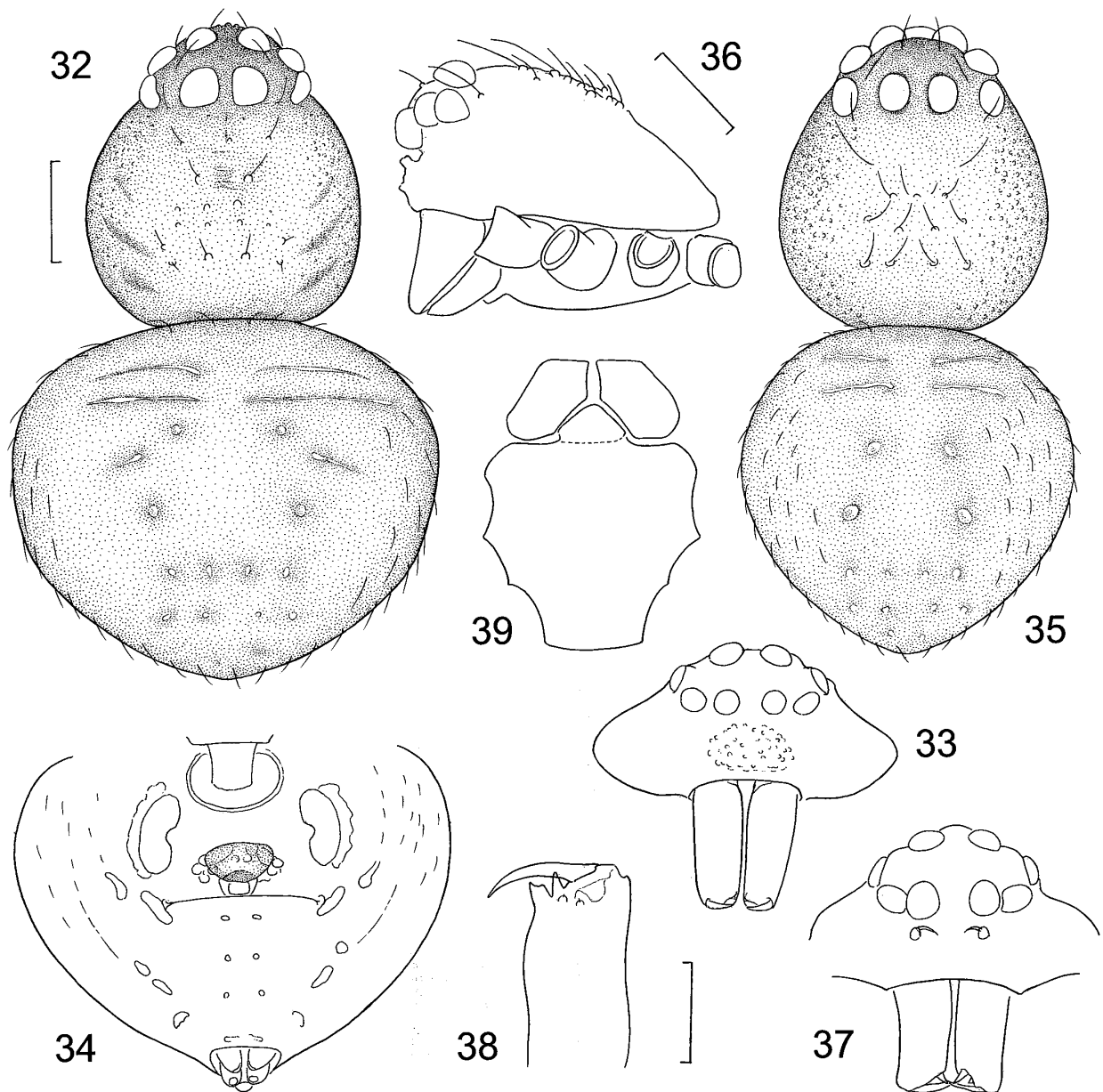
Genus *Allothymoites* nov.

[Japanese name: Harabiro-sasahimegumo-zoku]

Type species. *Allothymoites kumadai* sp. nov., by monotypy.

Diagnosis. The new genus belongs to the subfamily Theridiinae referring to the condition of cymbium and should be standing close to the genus *Thymoites* Keyserling, 1884, in body size less than 1.5 mm and in the ratio of the length of patella and tibia of the first leg to the length of carapace 1.03–1.14, as well as the dark colored opisthosoma without distinct markings. However, the new genus is recognized as an independent genus by the combination of following characteristics: Carapace with warty clypeus, but without distinct projection, extremely large eyes, chelicera with two teeth on promargin, presence of large tegular apophysis and hamulus-shaped median apophysis of male palp, opisthosoma triangle-shaped, epigynum with strongly sclerotized hole of genital opening with expanded posterior margin, spermathecae paired with long fertilization tubes, booklungs presumably without function, and absence of colulus.

Etymology. The generic name is formed by a combination of a Greek word *allos* meaning another and the name of the existent genus, *Thymoites*, which is Greek *thymos*+*-ites* and means a creature with warty excrescence. The gender is masculine.



Figs. 32–39. *Allothymoides kumadai* gen. et sp. nov. [32–34, female (allotype: NSMT-Ar 6986), 35–39, male (holotype: NSMT-Ar 6984)]. — 32, 35 Pro- and opisthosomata (appendages omitted), dorsal view; 33, 37, prosoma, frontal view; 34, opisthosoma, ventral view; 36, prosoma, lateral view; 38, chelicera, ventral view; 39, maxillae, labium and sternum, ventral view. [Scales: for Figs. 32–37, 39, 0.2 mm, for Fig. 38, 0.1 mm.]

***Allothymoides kumadai* sp. nov.**

[Japanese name: Harabiro-sasa-himegumo]

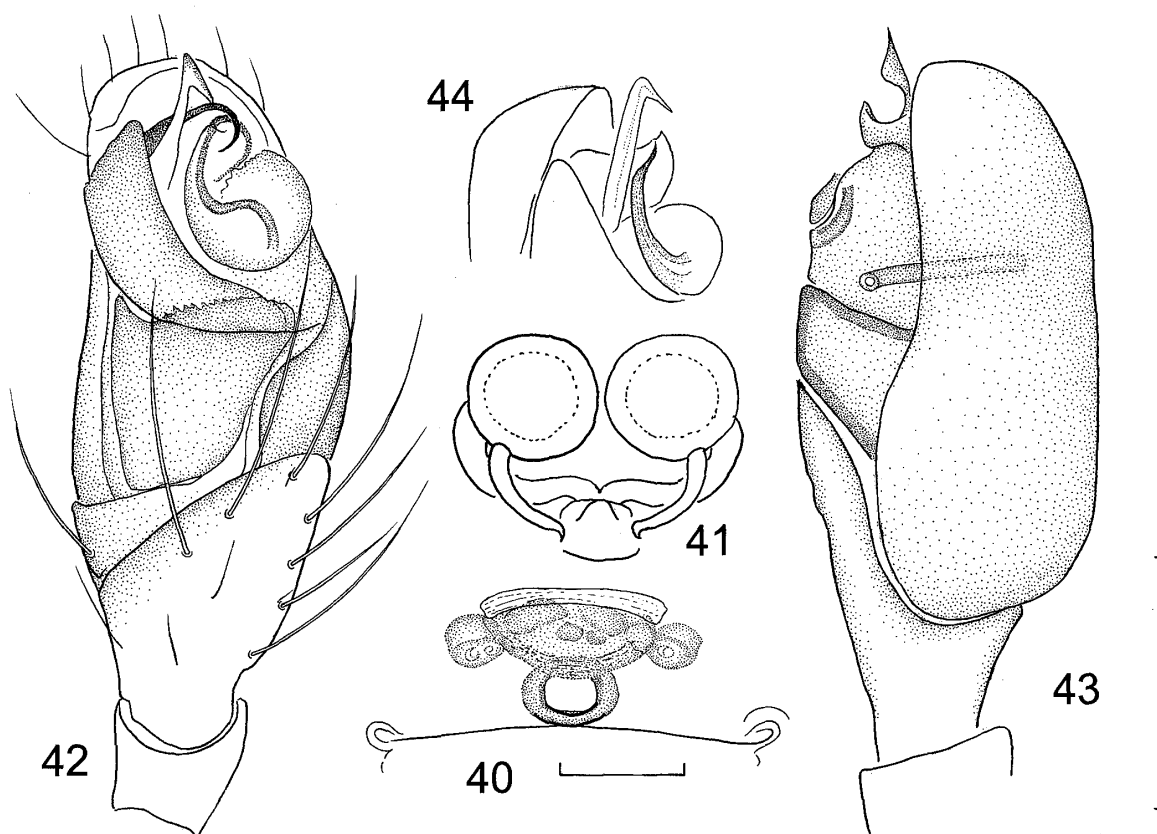
(Figs. 32–44)

Diagnosis. See the above generic diagnosis.

Type specimens. Holotype: male from Hounami, Kouchi, Geinou-cho, Age-gun (at present Tsu-shi), Mie Prefecture, Honshu, Japan, 20–IV–2001, K. Kumada leg. (NSMT-Ar 6984); allotype: female from Inoue, Ureshino-cho, Ichishi-

gun, Mie Prefecture, 7–III–2002, K. Kumada leg. (NSMT-Ar 6986); paratypes: one female, same data as for the allotype (NSMT-Ar 6987) and one male, same data as for the holotype (NSMT-Ar 6985).

Description (holotype and allotype). Measurements: Body length female 1.32 mm, male 1.25 mm; prosoma length female 0.60 mm, male 0.61 mm, width female 0.52 mm, male 0.55 mm; opisthosoma length female 0.74 mm, male 0.65



Figs. 40–44. *Allothymoites kumadai* gen. et sp. nov. [40–41, female (allotype: NSMT-Ar 6986), 42–44, male (holotype: NSMT-Ar 6984)]. — 40, Epigynum, ventral view; 41, inner organ of female genitalia, dorsal view; 42, palpal organ, ventral view; 43, same, retrolateral view; 44, embolic division, prolateral view. [Scales: 0.1 mm.]

mm, width female 0.82 mm, male 0.67 mm; lengths of legs [total length (femur+patella+tibia+metatarsus+tarsus)]: female I 1.83 mm (0.63+0.20+0.42+0.33+0.25), II 1.65 mm (0.55+0.19+0.36+0.30+0.25), III 1.16 mm (0.38+0.16+0.21+0.21+0.20), IV 1.40 mm (0.44+0.19+0.29+0.23+0.25), male I 2.08 mm (0.72+0.20+0.50+0.37+0.29), II 1.84 mm (0.61+0.19+0.42+0.35+0.27), III 1.30 mm (0.43+0.15+0.26+0.24+0.22), IV 1.54 mm (0.49+0.17+0.32+0.29+0.27).

Prosoma: Carapace slightly longer than wide (length/width female 1.15, male 1.11), with long hairs standing on tubercle, respectively (Figs. 32, 35–36). Median furrow absent, surface of carapace strongly sclerotized, with many folds forming reticulation. Eyes (Figs. 33, 37) very large and almost same in size except for female PLE little larger and the male ALE smaller than others, anterior eye row recurved, posterior one

straight in dorsal view, AME-AME>AME-ALE (6:1 in female and male), PME-PME=PME-PLE, median ocular area longer than wide (length/width female 1.14, male 1.13), wider in front than behind or as long as wide (anterior width/posterior width female 1.00, male 1.09), clypeus longer than AME-AME, remarkably tuberculate. Chelicerae (Fig. 38) with two large teeth on the promargin of fang furrow, labium triangle and fused with anterior margin of sternum, wider than long (length/width female 0.71 male 0.62), maxillae twice as long as labium, anterior margin of labium sclerotized and sharpened, sternum strongly sclerotized, with long hairs, slightly longer than wide (length/width female and male 1.05), conspicuously marginated and posteriorly truncated (Fig. 39). Female palp furnished with claw. Legs slender and hairy, femur I: pro- and retrolateral sides with line of long hairs each on tubercle, patellae curved ventrad. Leg formula:

I-II-IV-III.

Male palp (Figs. 42–44): Femur relatively short, as long as total length of the other segments. Cymbium long, palpal organ compactly set in distal part of cymbium, paracymbium without hook; tegular apophysis wide plate and large, median apophysis spiniform, curved apically with sharp angle, conductor indistinct; embolus spiniform and winding, without any projection at base.

Opisthosoma (Figs. 32, 34–35) wider in front than behind and forming an equilateral triangle, slightly wider than long (length/width female 0.90, male 0.97), its dorsum smooth and wholly covered with white, long hairs. Booklungs ineffective presumably, without opening. Anterior spinnerets and posterior lateral spinnerets thick and conical, posterior median spinnerets small, colulus absent.

Female genitalia (Figs. 40–41): Genital field wider than long, with sclerotized plate, and internal structure not visible through plate. Genital openings situated at anterior margin of large hole of epigynum, the posterior margin of hole expanded ventrad. Intromittent canal thick and short, spermathecae globular and close to each other, fertilization tube long and curved.

Coloration and markings (Figs. 32, 35): Female and male: carapace wholly dark reddish brown, chelicerae, maxillae and labium yellowish brown, sternum reddish brown, palps and legs yellowish brown, tibiae, metatarsi and tarsi of legs ventrally black. Opisthosoma dorsally black or gray, with some white, thin lines and dots, ventrally gray with some white patches, spinnerets yellowish white.

Variation. Body lengths of the paratypes: female 1.38 mm, male 1.17 mm. Prosoma of the male paratype is blackish brown.

Distribution. Japan (at present known only from Mie Prefecture).

Etymology. The species is dedicated to the collector of the type specimens.

Genus *Walckenaeria* Blackwall, 1833

Walckenaeria iriei sp. nov.

[Japanese name: Kyushu-tsuno-nukagumo]

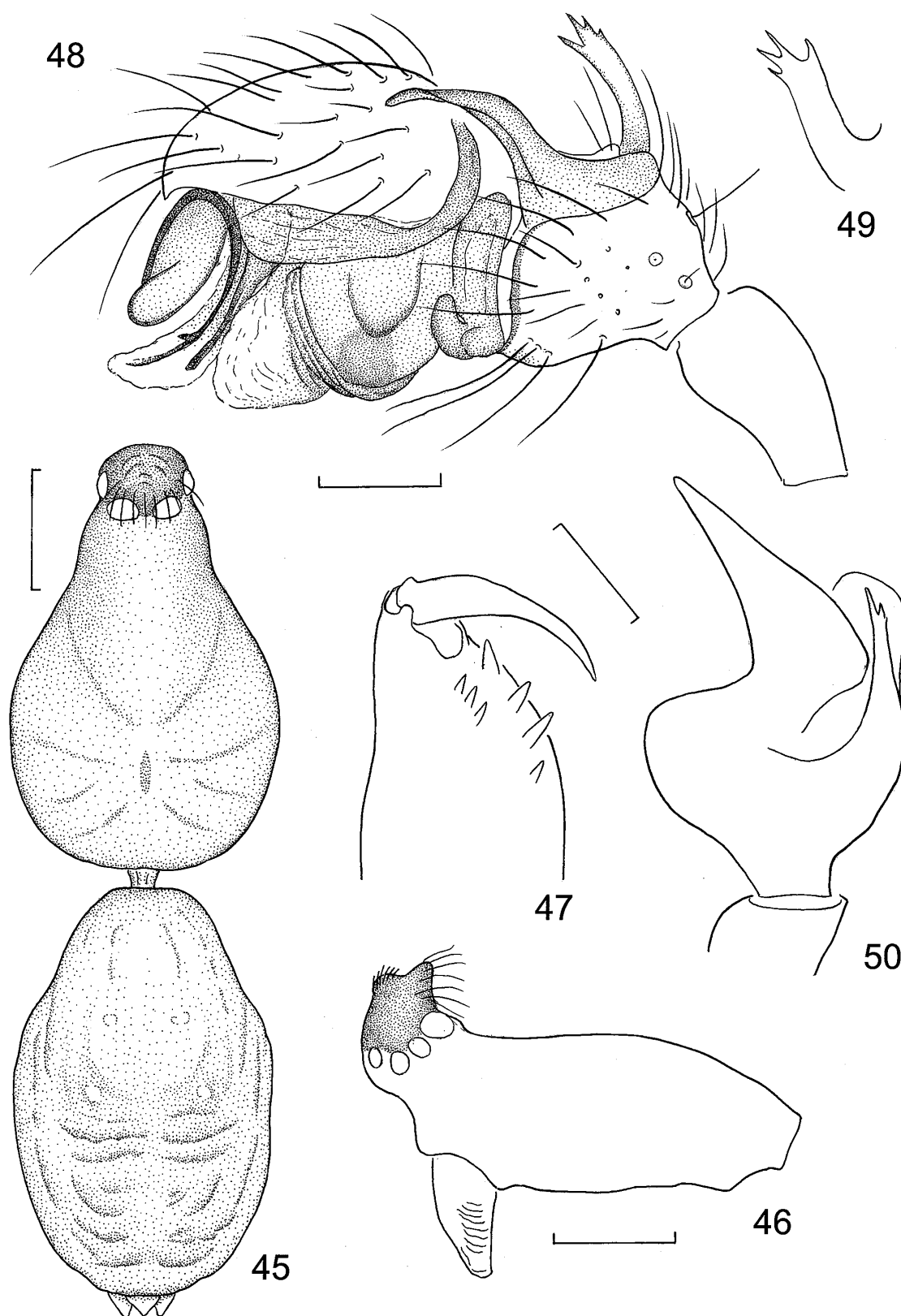
(Figs. 45–50)

Diagnosis. The present new species is closely related to *Walckenaeria keikoe* Saito, 1988, distributed in eastern and northern Honshu, but can be separated from the latter by the shape of male palpal tibia (cf. Fig. 50 and Saito, 1988, p. 20, fig. 9). The presence of additional prolateral apophysis (Fig. 49) of this new species is characteristic. These two species have peculiar projection on their ocular area.

Material examined. Holotype: male from Isahaya-shi, along the bank of Honmyou-gawa River, Nagasaki Prefecture, Kyushu, Japan, 8–VIII–1998, leg. T. Irie (NSMT-Ar 6988); paratype: one male, same data as for the holotype (NSMT-Ar 6989).

Description (holotype). Measurements: Body length 2.17 mm; prosoma length 1.12 mm, width 0.69 mm; opisthosoma length 1.05 mm, width 0.75 mm; lengths of legs [total length (femur+patella+tibia+metatarsus+tarsus)]: I 2.91 mm (0.84+0.25+0.75+0.62+0.45), II 2.66 mm (0.78+0.22+0.67+0.57+0.42), III 2.23 mm (0.66+0.22+0.53+0.49+0.33), IV 2.93 mm (0.85+0.22+0.77+0.68+0.41).

Prosoma (Figs. 45–46): Carapace longer than wide (length/width 1.62), with peculiar projection with long hairs on eye field, superficial median furrow and some radial lines present. Eyes compactly set around projection, almost same in size, ALE and PME slightly larger, anterior eye row procurved in frontal view, posterior row procurved in dorsal view, all eyes close to each other, clypeus almost as long as width of eye field. Chelicerae (Fig. 47) with four teeth on promargin of fang furrow and three teeth on retro-marginal, distinct stridulating files present, labium fused with anterior margin of sternum, wider than long (length/width 0.56), maxillae long, distally with hair tuft, sternum longer than wide (length/width 1.07), posteriorly truncated. Distinct spines not recognizable on tibiae of legs except for tibia III proximally with one weak spine



Figs. 45–50. *Walckenaeria iriei* sp. nov., male (holotype: NSMT-Ar 6988). — 45, Pro- and opisthosomata (appendages omitted), dorsal view; 46, carapace and chelicera, lateral view; 47, chelicerae, ventral view; 48, palpal organ, retrolateral view; 49, tibial apophysis, prolateral view; 50, tibia of palp, dorsal view. [Scales: for Fig. 45, 0.3 mm, for Figs. 46–50, 0.1 mm.]

(2–2–1–1 is typical for this genus), distance between coxae IV less than their diameter, claws of legs with three or four long teeth, Tm I 0.49, leg formula: IV–I–II–III.

Male palp (Figs. 48–50): Ratio of length of femur to that of patella 2:1, tibia as long as patella, dorsally with three trichobothria, without long spines, dorsal tibial apophysis large, very wide at base and sharp at peak, additional apophysis present prolaterally, which is wide and depressed with tip branched four times (Fig. 49). Cymbium short, paracymbium small and curved, embolic division not very large, embolus filiform, winding, with small projection at base.

Opisthosoma: Ovate, longer than wide (length/width 1.40), colulus present.

Coloration and markings (Fig. 45): Carapace orange, ocular area blackish, chelicerae, maxillae, labium and sternum light orange, legs yellowish brown, opisthosoma dorsally light gray without any marking, ventrally relatively lighter.

Variation. The single male paratype has body length 2.25 mm.

Distribution. Japan (at present known only from the type locality).

Etymology. This species is dedicated to the collector of the type specimen.

Remark. Female unknown.

Genus *Kagurargus* nov.

[Japanese name: Kagura-gomagumo-zoku]

Type species. *Kagurargus kikuyai* sp. nov., by monotypy.

Diagnosis. The new genus stands close to the genus *Micrargus* Dahl, 1886, in some important characters for linyphiids, especially in Tm I 0.41–0.42 in ratio, the absence of Tm IV, tibial spines 2–2–1–1 in order, and the small body size less than 2 mm. However, *Kagurargus* differs from the latter by the shape of male carapace and the genital morphology. The male head of the new genus has no sulcus and pit behind each PLE, but has a deep furrow and five pairs of peculiar setae behind ocular area. The eye arrangement of male is also different from the typical

one of *Micrargus*. In the male palpal organ, tibia of *Kagurargus* is more complicated than that of *Micrargus* and has a strong spine dorsally, which is absent in the latter. In the shape of male palpal tibia the new genus relatively resembles the genus *Oedothorax* Bertkau in Förster et Bertkau, 1883, but the tibia of the latter possesses a dentate apophysis instead of the spine as in the new genus. Although the structure of female genitalia of *Kagurargus* is closer to that of *Oedothorax* than to *Micrargus*, general characters of *Oedothorax* are far apart from those of the other two genera as Tm I larger than 0.50, Tm IV present and the body size more than 2 mm. The presence of very long and sclerotized conductor along the filiform embolus and a strong spine on male palpal tibia are the key characters of this new genus.

Etymology. The generic name is formed by a combination of the Japanese word ‘kagura’ meaning sacred music and dance derived from the name of the mountain in the type area and the Greek ‘Argos,’ the name of a being in mythology having a hundred eyes taken from the name of the related genus *Micrargus*. The gender is masculine.

Kagurargus kikuyai sp. nov.

[Japanese name: Kagura-gomagumo]

(Figs. 51–61)

Diagnosis. See the above generic diagnosis.

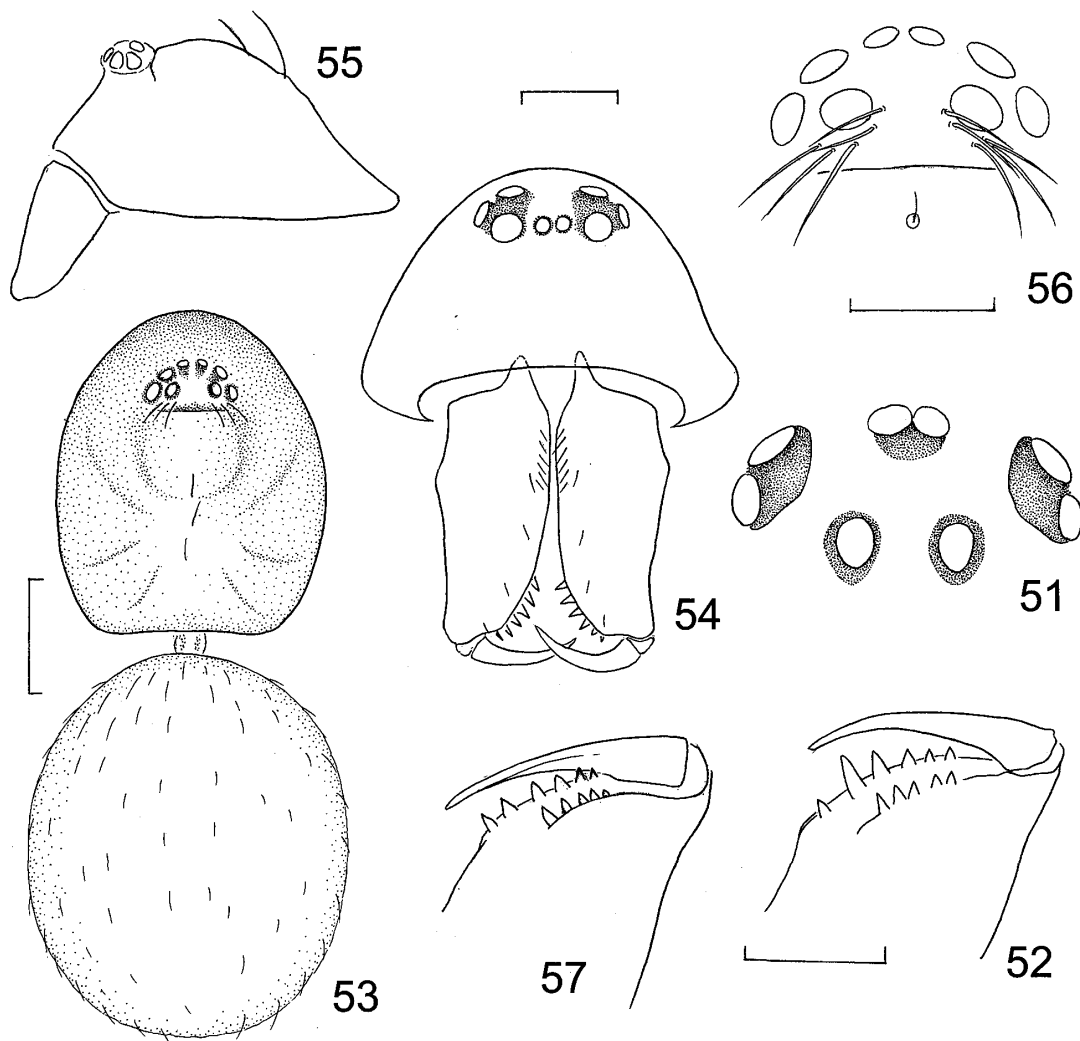
Material examined. Holotype: male and allotype: female from Mt. Kagura-yama, 300–400 m alt., Aoyama, Saeki-shi, Oita Prefecture, Kyushu, Japan, 8–XII–2006, leg. N. Kikuya (NSMT-Ar 6999–7000).

Description (holotype and allotype). Measurements: Body length female 1.33 mm, male 1.26 mm; prosoma length female 0.65 mm, male 0.60 mm, width female 0.48 mm, male 0.44 mm; opisthosoma length female 0.77 mm, male 0.67 mm, width female 0.50 mm, male 0.49 mm; lengths of legs [total length (femur+patella+tibia+metatarsus+tarsus)]: female I 1.48 mm (0.45+0.16+0.32+0.26+0.29), II 1.36 mm (0.40+0.15+0.30+0.24+0.27), III 1.16 mm (0.32+

0.15+0.23+0.23+0.23), IV 1.59 mm (0.53+0.15+0.38+0.29+0.24), male I 1.37 mm (0.45+0.15+0.30+0.24+0.23), II 1.29 mm (0.38+0.15+0.30+0.23+0.23), III 1.06 mm (0.30+0.12+0.22+0.21+0.21), IV 1.35 mm (0.41+0.15+0.32+0.25+0.22).

Prosoma: Carapace longer than wide (length/width female 1.35, male 1.36), with some radial lines, its surface forming minute reticulation, median furrow absent, cephalic part sexually dimorphic: male carapace with deep furrow behind eye field and five pairs of peculiar setae (Figs. 54–56). Eyes relatively small, ALE=PLE>PME=AME (5:5:3:3) in female (Fig. 51), ALE=PLE>PME>AME (5:5:4:3) in male,

the anterior eye row recurved in female and male, the posterior one procurved (female) or straight (male) in dorsal view, AME-AME<AME-ALE, PME-PME≥PME-PLE (female 1:1, male 4:1), median ocular area longer than wide in female, wider than long in male (length/width female 1.38, male 0.63), wider behind than in front (anterior width/posterior width female 0.77, male 0.44), clypeus almost as long as width of ocular area. Chelicerae (Figs. 52, 57) with six teeth on the promargin of fang furrow, five teeth on retro-margin, labium fused with anterior margin of sternum, wider than long (length/width female 0.57 male 0.62), maxillae twice as long as labium, its anterior margin sclerotized and sharp-



Figs. 51–57. *Kagurargus kikuyai* gen. et sp. nov. [51–52, female (allotype: NSMT-Ar 6999), 53–57, male (holotype: NSMT-Ar 7000)]. — 51, 56, Eyes, dorsal view; 52, 57, chelicera, ventral view; 53, pro- and opisthosoma (appendages omitted), dorsal view; 54, carapace and chelicerae, frontal view; 55, same, lateral view. [Scales: for Figs. 51–52, 56–57, 0.1 mm, for Figs. 53–55, 0.2 mm.]

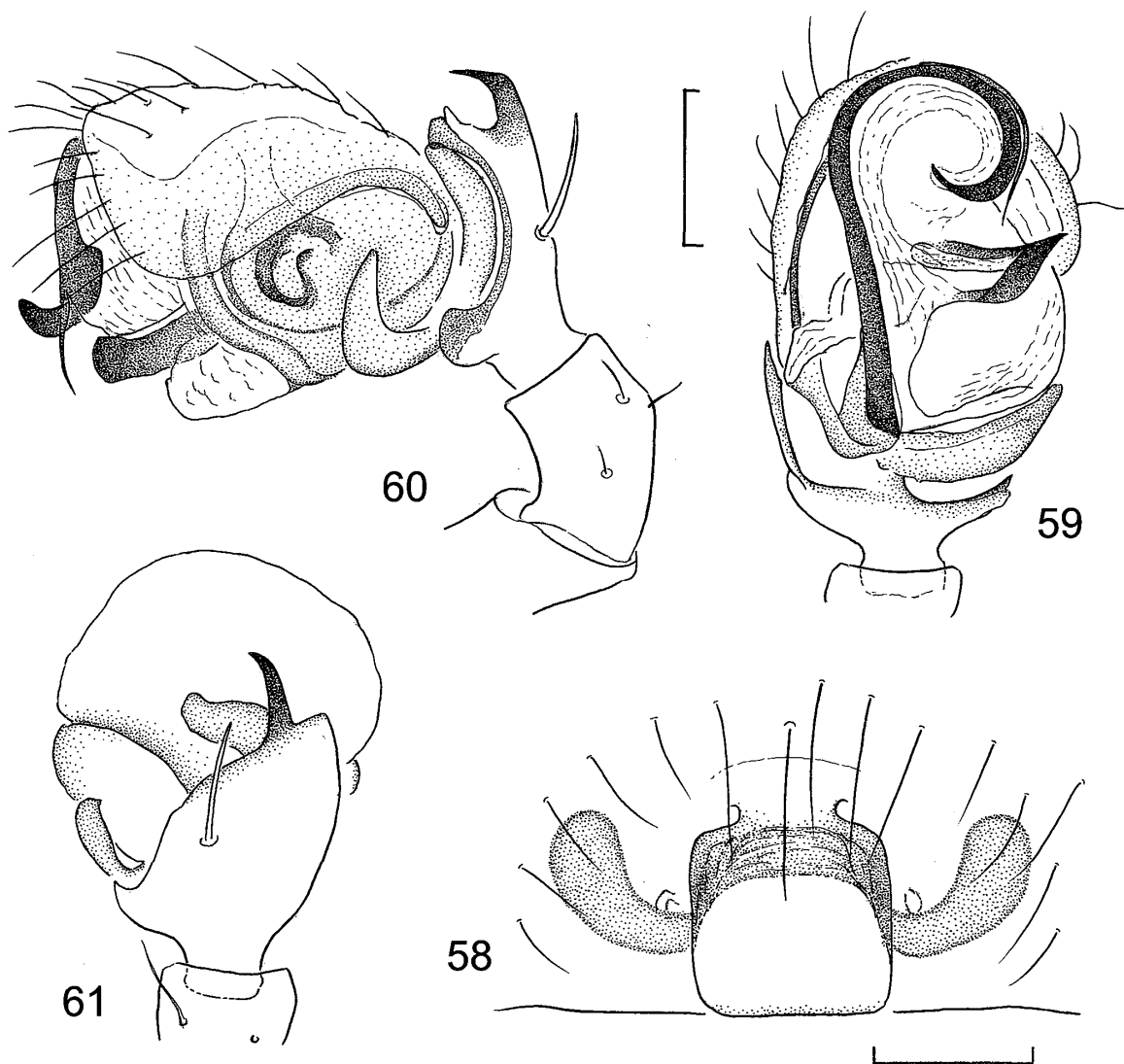
ened, sternum slightly longer than wide (length/width female and male 1.05), female palp without claw. Legs relatively robust, tibial spines of legs 2-2-1-1, distance between coxae IV wider than their diameter, Tm I female 0.41, male 0.42, Tm IV absent, leg formula: IV-I-II-III in female, I-IV-II-III in male.

Male palp (Figs. 59-61): Femur much longer than patella (5 : 3), tibia as long as patella, dorsally with spiniform apophysis and long spine (Fig. 61). Cymbium short, without notch, paracymbium simple and curved, with digitiform tip, embolus filiform, long and winding, with developed conductor.

Opisthosoma: Longer than wide (length/width female 1.54, male 1.37), its dorsum smooth with short hairs.

Female genitalia (Fig. 58): Genital field much wider than long, without scape, but square plate. Intromittent canals short, long spermathecae visible through integument.

Coloration and markings (Fig. 53): Female and male: carapace yellowish brown, chelicerae, maxillae and labium light yellowish brown, sternum yellowish brown (female) or yellowish white (male), palps and legs light yellowish brown, without annulation. Opisthosoma white (female) or yellowish white (male) dorsally,



Figs. 58-61. *Kagurargus kikuyai* gen. et sp. nov. [58, female (allotype: NSMT-Ar 6999), 59-61, male (holotype: NSMT-Ar 7000)]. — 58, Epigynum, ventral view; 59, palpal organ, ventral view; 60, palp, retrolateral view; 61, tibia of palp, dorsal view. [Scales: for Fig. 58, 0.05 mm, for Figs. 59-61, 0.1 mm.]

lighter ventrally.

Distribution. Japan (at present known only from the type locality).

Etymology. The species is dedicated to the collector of the type specimens.

Genus *Meioneta* Hull, 1920

Meioneta tenuipes sp. nov.

[Japanese name: Ashiboso-keshigumo]

(Figs. 62–66)

Diagnosis. Although *Meioneta* spiders are not popular in Japan, more than 150 species of this genus have been described from the Northern Hemisphere. Of these, the new species seems to be closely related to *Meioneta falcata* Li et Zhu, 1995 described from Shennongjia Forests, Hubei Province, China (Song, Zhu and Chen, 1999). Both the species have a similar construction of male palpal organ and female genitalia. However, the new species can be distinguished from the Chinese one by the details of lamella and embolus of male palp and the condition of intromittent canals of female genitalia (cf. Figs. 64–66 and Li and Zhu, 1995, p. 43, fig. 3 h, k) as well as by the coloration of the opisthosoma.

Material examined. Holotype: male and allotype: female from Aso, 500–600 m alt., Taiki-cho, Watarai-gun, Mie Prefecture, Honshu, Japan, 27–VII–2003, leg. K. Kumada (NSMT-Ar 6990–6991).

Description (holotype and allotype). Measurements: Body length female 1.95 mm, male 1.46 mm; prosoma length female 0.78 mm, male 0.61 mm, width female 0.60 mm, male 0.48 mm; opisthosoma length female 1.08 mm, male 0.76 mm, width female 0.75 mm, male 0.50 mm; lengths of legs [total length (femur+patella+tibia+metatarsus+tarsus)]: female I 3.92 mm (1.07+0.22+1.05+0.98+0.60), II 3.35 mm (0.96+0.20+0.83+0.83+0.53), III 2.52 mm (0.75+0.19+0.59+0.60+0.39), IV 3.27 mm (0.94+0.19+0.85+0.81+0.48), male I 3.45 mm (0.92+0.19+0.89+0.89+0.56), II 2.88 mm (0.78+0.19+0.73+0.71+0.47), III 2.11 mm (0.62+0.15+0.47+0.51+0.36), IV 2.69 mm (0.78+0.15+0.68+

0.66+0.42).

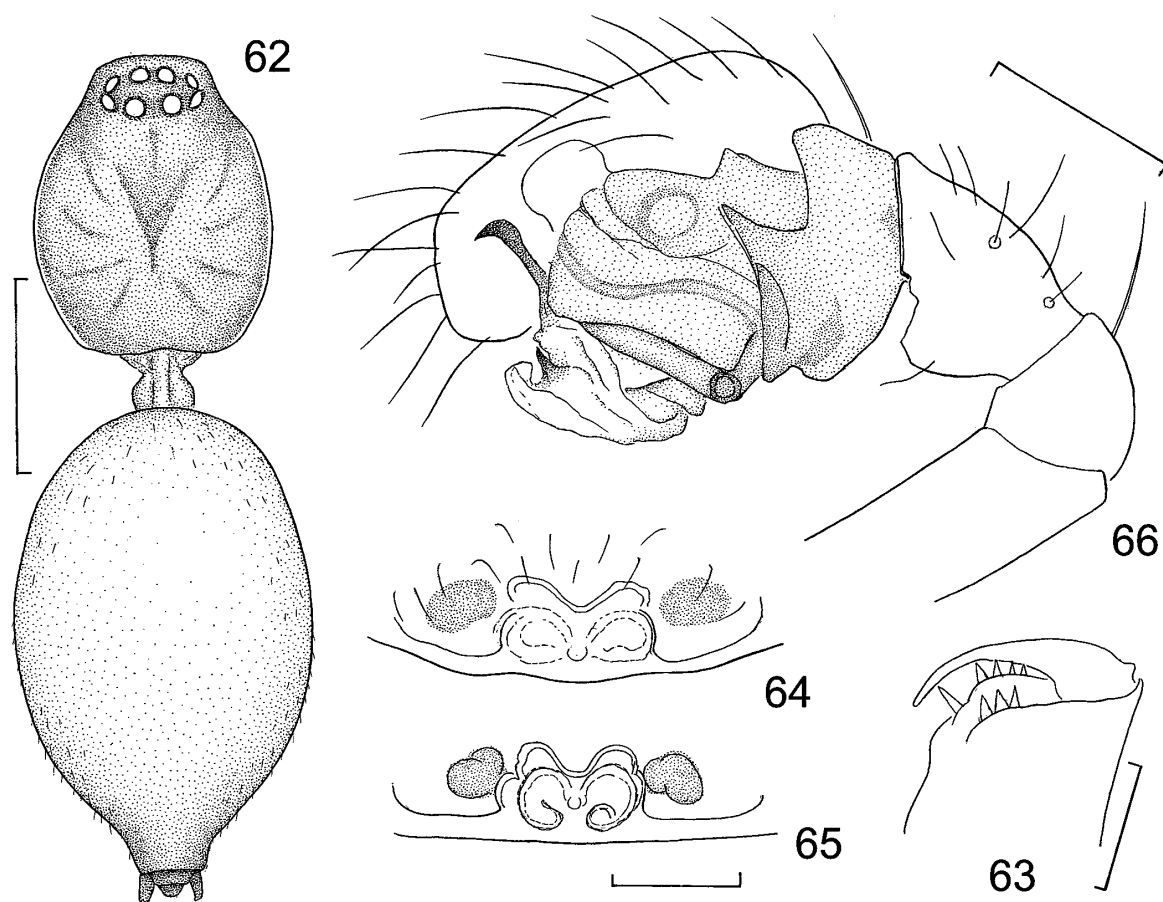
Prosoma: Carapace simple, longer than wide (length/width female 1.30, male 1.27 in ratio), with sparse hairs, a triangle patch at the middle and radial lines, median furrow indistinct. No projection on male carapace. Eyes relatively large and almost same in size except for the ALE and PME larger than the others, the anterior eye row recurved, the posterior one straight in dorsal view, AME-AME=AME-ALE, PME-PME>PME-PL (5:4 in diameter) in female and male, median ocular area almost square (length/width female 0.87, male 1.00), wider behind than in front (anterior width/posterior width female 0.70, male 0.78), clypeus longer than AME-AME. Chelicerae with five teeth on the promargin of fang furrow, three teeth on retromargin (Fig. 63), labium fused with anterior margin of sternum, wider than long (length/width female 0.53 male 0.61), its anterior margin incrassated, maxillae twice as long as labium, swollen, its anterior margin sclerotized and sharpened, sternum slightly longer than wide in female and male (length/width 1.11). Legs very slender, tibial spines of legs 2–2–2–2 in order, distance between coxae IV less than their diameter, Tm I female 0.15, male 0.18, Tm IV absent, leg formula: I–II–IV–III.

Male palp (Fig. 66): Tibia longer than patella, dorsally with two trichobothria, but without distinct apophysis and long setae. Cymbium with a large notch retrolaterally, paracymbium thick and strongly sclerotized, with digitiform tip, embolus short and spiniform, curved apically.

Opisthosoma: Longer than wide (length/width female 1.44, male 1.52), its dorsum smooth with short hairs.

Female genitalia (Figs. 64–65): Genital field much wider than long, with indistinct scape. Winding intromittent canals well visible through integument, spermathecae reniform.

Coloration and markings (Fig. 62): Female and male: carapace wholly blackish brown, chelicerae, maxillae, labium and palps dark brown, sternum blackish brown, legs light yellowish white, their femora, patellae and tibiae with black lines



Figs. 62–66. *Meioneta tenuipes* sp. nov. [62–65, female (allotype: NSMT-Ar 6991), 66, male (holotype: NSMT-Ar 6990)]. — 62, Pro- and opisthosomata (appendages omitted), dorsal view; 63, chelicerae, ventral view; 64, epigynum, ventral view; 65, female genitalia, posterior view; 66, palpal organ, retrolateral view. [Scales: for Fig. 62, 0.5 mm, for Figs. 63–66, 0.1 mm.]

pro- and retrolaterally. Opisthosoma milky white dorsally, blackish distally, light gray ventrally, spinnerets darker.

Distribution. Japan (at present known only from the type locality).

Etymology. The specific epithet of this new spider is formed by a combination of the Latin *tenuis* (thin, delicate) and *pes* (foot, leg), and is derived from the condition of its legs.

Family Anapidae

Subfamily Mysmeninae

Genus *Mysmenella* Brignoli, 1980

Mysmenella ogatai sp. nov.

[Japanese name: Yamato-kotsubugumo]

(Figs. 67–75)

Diagnosis. This new species seems to be closely related to *Mysmenella gongi* Yin, Peng et Bao, 2004, described from Daoxian County, Hunan Province, China, but can be distinguishable from the latter by the shape of male palp and the structure of female genitalia. In *Mysmenella ogatai* the distal part of embolus has a larger securiform process and the female genitalia is much wider (cf. Figs. 70, 75, and Yin et al., 2004, p. 81, figs. 4, 8). *Mysmenella jobi* (Kraus, 1967) widely distributed from Europe to Japan differs from these two species by the absence of the round accessory organ at the spermatheca and the longer scape of epigynum as well as details of male palpal organ.

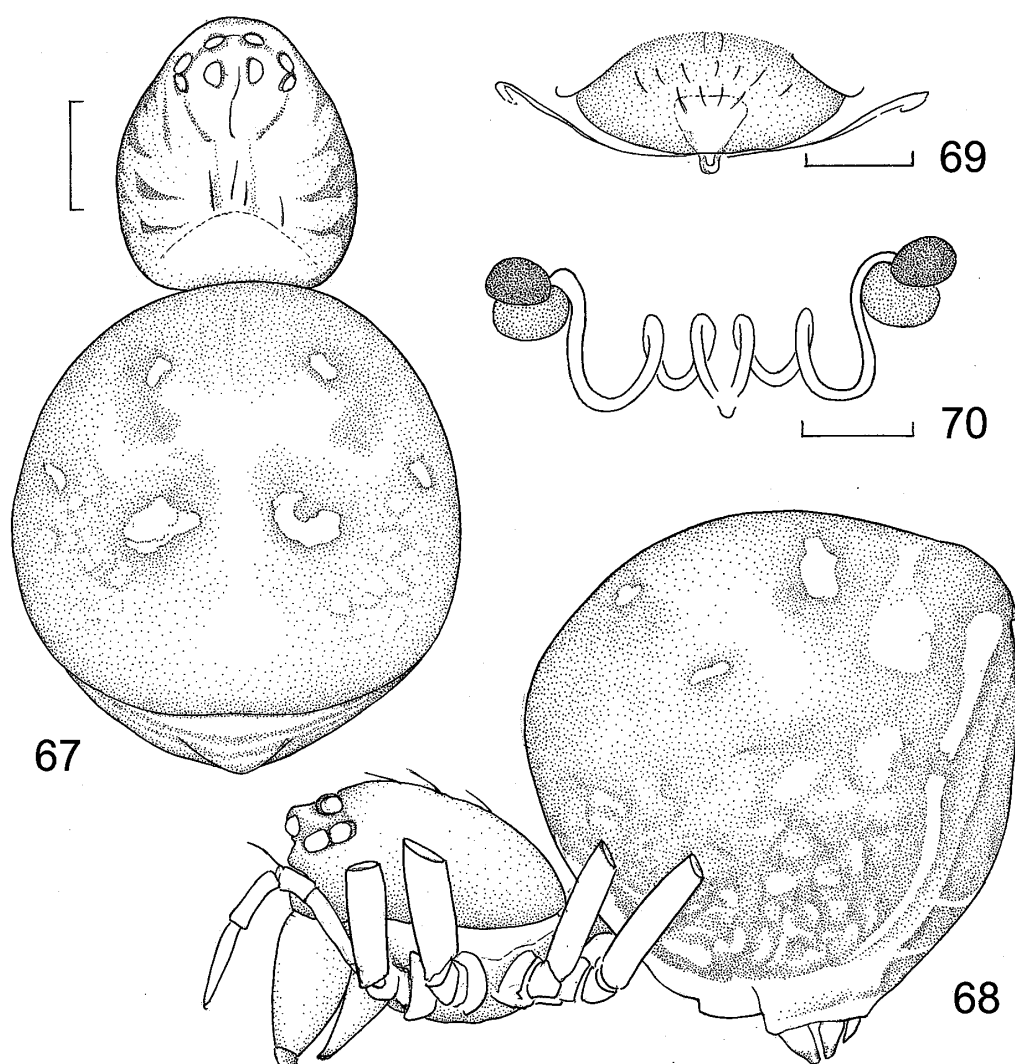
Material examined. Holotype: male, allotype: female from Ikegane-cho, about 200 m alt., Okazaki-shi, Aichi Prefecture, Honshu, Japan,

29–VI–1995, K. Ogata leg. (NSMT-Ar 7376–7377); paratypes: two females and two males, same data as for the holotype (NSMT-Ar 7378–7381); three males (non type), from Itayama-cho, Handa-shi, Aichi Prefecture, Japan, 13–V–1993, leg. K. Ogata (NSMT-Ar 7382).

Description (holotype and allotype). Measurements: Body length female 1.39 mm, male 1.14 mm; prosoma length female 0.54 mm, male 0.52 mm, width female 0.46 mm, male 0.50 mm, height female 0.30, male 0.55; opisthosoma length female 0.90 mm, male 0.67 mm, width female 0.76, male 0.54 mm; lengths of legs [total length (femur+patella+tibia+metatarsus+tarsus)]: female I 1.67 mm (0.53+0.21+0.35+0.29+0.29),

II 1.50 mm (0.45+0.20+0.32+0.25+0.28), III 1.09 mm (0.34+0.15+0.20+0.18+0.22), IV 1.43 mm (0.46+0.17+0.31+0.23+0.26), male I 1.80 mm (0.57+0.21+0.37+0.30+0.35), II 1.48 mm (0.45+0.20+0.31+0.24+0.28), III 1.07 mm (0.35+0.14+0.18+0.17+0.23), IV 1.34 mm (0.42+0.16+0.29+0.23+0.24).

Prosoma: Carapace slightly longer than wide (length/width female 1.17, male 1.04), very high in male (height /width female 0.65, male 1.10), highest at the ocular area, with several setae at middle, median furrow present, cervical bald spots absent, the surface of carapace normal. Head not modified, both eye rows recurved in dorsal view, ALE=PME>PLE=AME in female

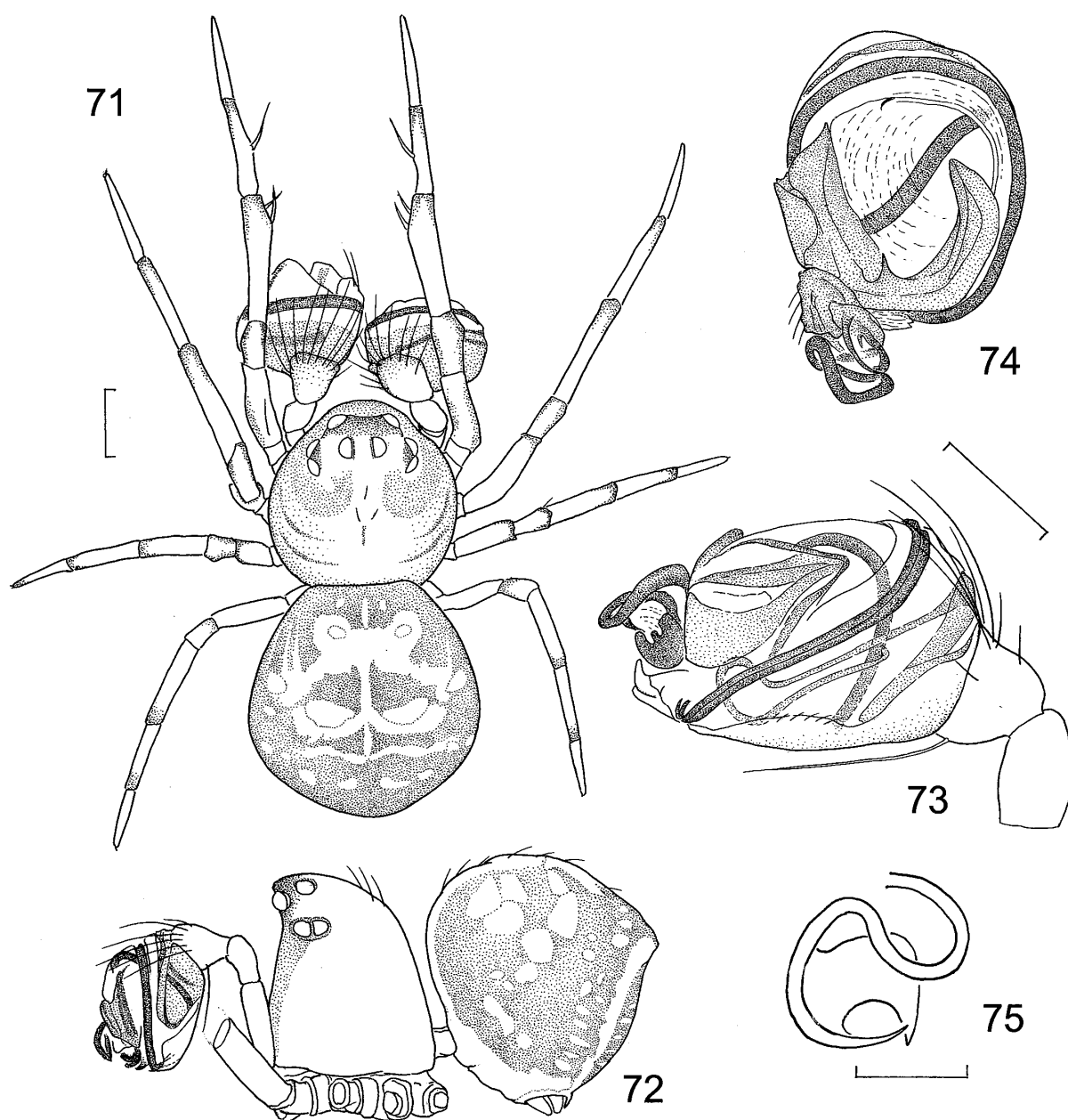


Figs. 67–70. *Mysmenella ogatai* sp. nov., female (allotype: NSMT-Ar 7377). — 67, Pro- and opisthosomata (appendages omitted), dorsal view; 68, same, lateral view; 69, epigynum, ventral view; 70, inner organ of female genitalia, dorsal view. [Scales: for Figs. 67–68, 0.2 mm, for Figs. 69–70, 0.1 mm.]

(6:7:7:6 in diameter), AME>ALE>PME>PLE in male (10:8:7:6 in diameter), AME-AME>AME-ALE (2:1) in female and male, PME-PME=PME-PLE in female and male, ALE and PLE close to each other, median ocular area almost square in female, as long as wide and wider in front than behind in male (anterior width/posterior width 1.16), clypeus long, extremely in male, much longer than AME-AME. Chelicerae with two teeth on the promargin of fang furrow, labium wider than long (length/

width female and male 0.50), furnished with two pairs of setae, anterior margin sclerotized and sharpened, sternum covered with hairs, slightly longer than wide (length/width female 1.05, male 1.03), female palp present (Fig. 68).

Legs: Femora without spines, patellae I-IV apically with long, dorsal spine in female, 1-0-1 spines in male, tibiae I-IV dorsally with long spine at middle, tibia I of male distally with two strong, lateral spines, metatarsus I of male with a strong spine curved (Fig. 71), tarsus almost as



Figs. 71-75. *Mysmenella ogatai* sp. nov., male (holotype: NSMT-Ar 7376). — 71, Pro- and opisthosomata, dorsal view; 72, same, lateral view; 73, palp, retrolateral view; 74, palpal organ, ectal view; 75, embolic division, dorsal view. [Scales: for Figs. 71-74, 0.2 mm, for Figs. 75, 0.1 mm.]

long as wide in all legs, teeth on claws of the legs indistinct. Leg formula: I–II–IV–III.

Male palp (Figs. 73–75): Femur simple, without apophysis, much longer than patella; patella not modified, without apophysis, tibia short, with some long setae. Cymbium proximally simple and small, distally with sclerotized plate (paracymbium) furnished with small tooth at middle (Fig. 74), palpal organ large and expanded from cymbium, the embolic division bare, embolus filiform and winding, with securiform process large (Fig. 75).

Opisthosoma: Globular, longer than wide (length/width female 1.18, male 1.24), slightly projected behind and the posterior part forming oval plate with transverse folds. Anterior spinneret and posterior-lateral spinneret conical, posterior-median one small, colulus present with pair of hairs.

Female genitalia (Figs. 69–70): Genital field wider than long with small scape. Genital openings situated at the scape, internal organs not visible through integument. Intromittent canals thin and winding, spermathecae reniform with an accessory process round.

Coloration and markings (Figs. 67–68, 71–72): Female and male: carapace yellowish brown, with some radial markings in black, around both AMEs black, chelicerae, maxillae, labium and palps yellowish brown, sternum yellowish white, legs yellowish brown with dark annulations. Opisthosoma dorsally grayish beige or gray, with more than three pairs of white spots, posteriorly with a pair of longitudinal white markings and five transverse black lines, ventrally gray.

Variation. Body length of paratypes: females 1.27–1.53 mm, males 1.11–1.20 mm. A female has larger white spots of opisthosoma, the markings of opisthosoma are not distinct in two males.

Distribution. Japan (at present known only from Aichi Prefecture).

Etymology. The species is dedicated to the collector of the type specimens.

Acknowledgements

The present author wishes to express his sincere thanks to Dr. Narayoshi Kikuya, Oita, Mr. Teruo Irie, Kumamoto, Mr. Eiichi Shinkai, Tokyo, Mr. Hiroshi Saito, Yamanashi, Mr. Kiyoto Ogata, Aichi, Mr. Kenichi Kumada, Mie, Mr. Shingo Hatsushiba, Tokyo, and Dr. Shuhei Nomura, Tokyo, for their kind advice and for offering interesting material. This study was supported in part by the Grant-in-aid No. 16540431 for Scientific Research by the Ministry of Education, Science, Sports and Culture, Japan.

References

- Brignoli, P. M., 1980. On few Mysmenidae from the Oriental and Australian Regions (Araneae). *Revue suisse de Zoologie*, **87**: 727–738.
- Dahl, F., 1886. Monographie der *Erigone*-Arten im Thorell'schen Sinne, nebst anderen Beiträgen zur Spinnenfauna Schleswig-Holsteins. *Schriften des naturwissenschaftlichen Vereins für Schleswig-Holstein, Kiel*, **6**: 65–102.
- Förster, A., and P. Bertkau, 1883. Beiträge der Kenntnis der Spinnenfauna der Rheinprovinz. *Verhandlungen der naturhistorischen Vereins der preussischen Rheinlande und Westfalens, Bonn*, **40**: 205–278, pl. III.
- Kraus, O., 1967. Zur Spinnenfauna Deutschlands, II. *Mysmena jobi* n. sp., eine Symphytognathide in Mitteleuropa (Arachnida: Araneae: Symphytognathidae). *Senckenbergiana biologica*, **48**: 387–399.
- Levi, H. W., 1957. The North American spider genera *Paratheridula*, *Tekellina*, *Pholcomma* and *Archerius* (Araneae: Theridiidae). *Transactions of the American Microscopical Society*, **76**: 105–115.
- Li S.-Q., and C.-D. Zhu, 1995. Five new species of linyphiid spiders from China (Araneae: Linyphiidae). *Acta Zootaxonomica Sinica*, **20**: 39–48.
- Murphy, F., and J., 2000. An Introduction to the Spiders of Southeast Asia, with Notes on All the Genera. vii+625 pp., 32 pls. Malayan Nature Society, Kuala Lumpur.
- Ono, H., 2005. Spiders from Akasaka Imperial Gardens, Minato-ku, Tokyo, Japan (Arachnida, Araneae). *Memoirs of the National Science Museum*, (39): 439–453.
- Ono, H., T. Kamura and Y. Nishikawa, 1999. Arachnida, Araneae. In: Aoki, J. (ed.), *Pictorial Keys to Soil Animals of Japan*, pp. 444–558, 1029–1032. Tokai University Press, Tokyo.
- Ono, H., and H. Saito, 2001. New species of the family Linyphiidae (Arachnida, Araneae) from Japan. *Bulletin of the National Science Museum, Tokyo, Series A*, **27**:

- 159–203.
- Saito, H., 1988. Four new erigonine spiders (Araneae: Linyphiidae) from Japan. *Edaphologia*, (39): 17–24.
- Saito, H., and H. Ono, 2001. New genera and species of the family Linyphiidae (Arachnida, Araneae) from Japan. *Bulletin of the National Science Museum, Tokyo*, Series A, **27**: 1–59.
- Saito, S., 1934. Spiders from Hokkaido. *Journal of the Faculty of Agriculture, Hokkaido Imperial University, Sapporo*, **33**: 267–362, pls. 12–15.
- Shinkai, E., 2006. Spiders of Japan. 335 pp. Bun-ichi Sogo Shuppan, Tokyo.
- Song, D. X., M.-S. Zhu and J. Chen, 1999. The Spiders of China. 640 pp., pls. 1–4. Hebei Science and Technology Publishing House, Shijiazhuang.
- Wiehle, H., 1937. Familie Theridiidae oder Haubennetzspinnen (Kugelspinnen). *Tierwelt Deutschlands*, **33**: 119–222.
- Yaginuma, T., 1986. Spiders of Japan in Color, New Edition. xxiv+305 pp., pls. 1–64. Hoikusha, Osaka.
- Yaginuma, T., and Y. Nishikawa, 1969. Faunal survey on Mt. Ontake, JIBP main area, VI. In: Annual Report of JIBP-CT-S for Fiscal Year 1968, pp. 71–87. Japan Environment Agency, Tokyo.
- Yin, C.-M., X.-J. Peng and Y.-H. Bao, 2004. A new species of the genus *Mysmenella* from China (Araneae, Mysmenidae). *Acta Zootaxonomica Sinica*, **29**: 80–82.
- Yoshida, H., 2003. The Spider Family Theridiidae (Arachnida: Araneae) from Japan. 223 pp. Arachnological Society of Japan, Osaka.